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ABSTRACT

Factors that influence attitudes toward a corporate environmental advertisement and its sponsoring company were examined with a quasi-experimental design. Subjects (undergraduate students) read one of five news stories about an ad touting an oil company's active environmental involvement to test for the effects of publication credibility and message balance. Exposure to any story about the ad lowered evaluation of the ad and company. Subjects who read stories containing only negative information about the ad rated the company lower than subjects who read balanced stories. Publication credibility did not influence attitudes. Subjects' environmental involvement, environmental participation, experience with oil companies, and political affiliation influenced attitudes toward the ad and company. (Contains 56 references and 2 tables of data.) (RS)

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Do News Media Messages Mitigate the Effect of Corporate Environmental Ads? A test of source credibility and message balance.

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Abstract

Do News Media Messages Mitigate the Effect of Corporate Environmental Ads? A test of source credibility and message balance.

Factors that influence attitudes toward a corporate environmental advertisement and its sponsoring company were examined with a quasi-experimental design. Subjects read one of five news stories about an ad to test for the effects of publication credibility and message balance. Exposure to any story about the ad lowered evaluation of the ad and company. Subjects who read stories containing only negative information about the ad rated the company lower than subjects who read balanced stories. Publication credibility did not influence attitudes. Subjects' environmental involvement, environmental participation, experience with oil companies, and political affiliation influenced attitudes toward the ad and company.

South of Los Angeles, near the seaside town of Manhattan Beach, is Chevron Corporation's El Segundo refinery, a two-square-mile monolith of conduits, ponds, tubes, storage tanks, and flame-belching smokestacks. What does the public know of this refinery? Thanks to a massive publicity and advertising campaign started in 1985 by Chevron, the public perception of the El Segundo refinery is favorable (Karliner, 1997). Produced at $5 million to $10 million per year, the "People Do" campaign consists of print and television advertisements, each featuring a different Chevron project. The commercial featuring El Segundo, for example, highlights the site's pristine butterfly preserve studied by scientists from throughout the world (Karliner, 1997).

Chevron is not alone. Corporations spend big on environmental advertising campaigns, exceeding $500 million in 1990 (Rowell, 1996). One environmental watchdog study estimated that by 1997, at least 10 corporations had annual advertising budgets of more than $1 billion each, with a vast amount actually going into environmental advertising (Greenpeace, 1997).

While corporations have been pouring money into environmental advertising, the news media have increasingly turned their backs on environmental issues. By the late 1990s, both print and broadcast environmental journalists said they were spending less time reporting environmental topics (Detjen, 1997). Total network news time devoted to environmental coverage declined 60% in a five-year period between the peak during the Exxon Valdez spill in 1989 and 1994 (Carmody, 1995). A 1994 survey found that nearly three quarters of the reporters working in the field lacked sufficient training to the cover complex environmental subjects, which left them relying heavily on government sources, reports, and press releases for their information (Dumanoski, 1994). The public has taken note, giving the media a barely passing grade for environmental coverage, according to a 1996 Times-Mirror poll (Robinson & Levy, 1996). As the media struggle with

their roll in disseminating environmental information, the potential for corporations to mold public perception through advertising remains great.

This study uses an experimental design to examine the intersection of these two sources of information on the environment. The study examines what role, if any news stories have in mitigating or enhancing the effects of corporate environmental advertisements on consumers' attitudes about an ad and its sponsoring company. Further, the study examines the influence of publication credibility and message balance on attitudes toward the ad. The study also examines the effect of other factors – including age, gender, political affiliation, and environmental involvement – on attitudes and whether these interact with media message factors.

Literature Review

Advertising effectiveness has been evaluated in many ways. The ARF Copy Research Validity study has found that likeability of ads is the most common predictor of advertising success (Rossiter & Eagleson, 1994). Recall, believed to play an important role in generating brand awareness or brand identification, is tied to likeability (Willke, 1993). Thus, ads are more likely to be remembered if the viewer likes them (Leather, McKenchie, & Amirkhanian, 1994). Individuals who have a favorable view of an advertisement are generally more likely to be persuaded by its message (Biel & Bridgewater, 1990). Effective advertising can enhance the persuasiveness of an advertising message, especially when there is a significant positive correlation between liking and recall (Du Plessis, 1994). Within this context, advertising becomes a powerful tool of communication.

The effectiveness of environmental advertising has not been documented to the extent of other similar forms of persuasive communication, such as political advertising, public information campaigns, and image advertising. Indeed, most environmental advertising research has focused

on "green" appeals and how these impact the "green" consumer (Straughan & Roberts, 1999). Established frameworks, such as the Elaboration Likelihood Model (ELM), can help shed light on the effectiveness of these persuasive messages.

Elaboration Likelihood Model

The ELM, concerned with source, message, and receiver characteristics, has been an effective model in conceptualizing advertising effects on mass audiences (Petty, Kasmer, Haugtvedt, & Cacioppo, 1987). Developed from several social psychology theories, the ELM posits that persuasion depends on whether the likelihood of issue-relevant thought is high or low. For long-term attitude change, the receiver must be motivated and able to process the arguments contained in the message. A sequence of steps follows exposure to the persuasive message: (1) attention to the message; (2) understanding of message content; (3) evaluation of the message (elaboration integration); and (4) a change of opinion (Boster, Hamilton, & Hunter, 1993). In general, the ELM posits that the level of elaboration will affect the persuasion process, and therefore, the resulting direction and strength of attitude change.

Central routes v. peripheral routes. Petty and Cacioppo (1981) state that a message will be processed in the central route in a high elaboration situation, or one in which the recipient is highly involved in the issue and the issue is relevant to the receiver. In other words, the attitude change is the result of deep consideration of information presented. In the peripheral route, simple cues in the persuasion context take on great meaning and influence attitudes. Petty and Priester, (1994) list examples of such cues, including "experts are correct," "if so many people agree, it must be true," and even pleasant scenery accompanying a message. Attitude change from peripheral route processing tends to be less accessible, less enduring, and less resistant to attacking messages than attitude change from central route processing (Petty & Cacioppo, 1986).

Individuals' attitudes are influenced more by peripheral cues under low involvement, whereas message argument strength plays a more important role under high involvement (Zhang & Buda, 1999).

Source. The communicator, or source, is more persuasive when associated with positive attributes (Eagly & Chaiken, 1993). Source characteristics include likeability, celebrity status, credibility, trustfulness, expertise, and attractiveness. Research has found that when elaboration likelihood was low, source factors such as expertise and attractiveness served as simple positive cues, enhancing attitudes regardless of argument quality (Pechman & Estaban, 1990; Moore et. al, 1986). But when elaboration likelihood was high, source factors did not serve as simple cues. Instead, attitudes were determined primarily by the nature of the arguments presented (Chaiken, 1980). In two experiments where the elaboration likelihood was held constant, the source factors of expertise and attractiveness determined how much thinking participants did about the arguments presented (Puckett, Petty, Cacioppo, & Fisher, 1983).

Perceived source credibility has been identified as a key catalyst in allowing persuasive communication and attitude change to occur (Hovland, Janis, & Kelley, 1953). Garramone (1985) used Hovland and Mandell's concept of "trustworthiness" as an indicator of source credibility, finding that viewers perceived an independent sponsor as more trustworthy than a candidate sponsor in evaluating political advertising. Garramone and Smith (1984) found that ads from independent sponsors were seen as more trustworthy than ads sponsored by a party or a candidate.

Message. Information in a message can be phrased in many different ways, either positively or negatively, in complex or simple language, through repetition, or as low quality or high quality support or arguments. For example, a University of Michigan study found that participants who viewed "positive" advertisements were significantly more likely to say they

would engage in environmental activities (Spielfogel, 1999). In the world of advertising, a central belief is that the product must be associated with positive features and images (Crowley & Hoyer, 1994). Hovland found that one-sided messages were indeed effective modes of communication, particularly for individuals who already had made up their minds. An accompanying two-sided message was found to be less effective because it seemed to serve as a cue to infer negative feeling toward the message (Hovland et al., 1953).

Yet, some suggest adding negative information to positive messages can increase credibility with an audience (Golden & Alpert, 1987). Researchers have found that a two-sided message can be an extremely efficient persuasive technique when consumers already hold negative attitudes toward a brand and when consumers are to be exposed to negative counterclaims by competitors or by a neutral third party, including news media (Golden & Alpert, 1987; Sawyer, 1973). In addition, research has shown that two-sided messages can generate attitudinal resistance to attack (Kamins & Assael, 1987). Crowley and Hoyer (1994) contend this inconsistency in results on one- and two-sided messages stems from the lack of a theoretical framework that specifically addresses two-sided message effects. Also, other variables, such as the nature and amount of negative information included, "are likely to be important determinants of two-sided message effects" (p. 562).

Crowley and Hoyer (1994) attempted to determine the interaction between one- and two-sided messages by characterizing these messages as "negative" and "positive." A consistent finding in the two-sided advertising literature is an increase in message credibility stemming from the presence of a low to moderate amount of negative information in the message. However, when the amount of negative information in a message exceeds a moderate level (Crowley & Hoyer put this level at 40% or more), advertising effectiveness was diminished. "Consumers will

believe the negative information, and these beliefs will be reflected in their attitude toward the brand, reducing the overall favorability of beliefs and thus attitude toward brand" (p. 570).

Spielfogel (1999) studied the effect negative or positive environmental advertisements had on the attitudes and behaviors of 128 students. Participants who viewed the positive advertisements were significantly more likely to say they would engage in environmental activities; environmentalists and those who were more overwhelmed and frightened by the problems portrayed in negative ads also exhibited a higher likelihood of action. This study suggests that practitioners need to weigh carefully the objectives of their campaigns when deciding to offer negative or positive images in their environmental ads.

Receiver. The final consideration – but one of the most critical – in the ELM is the receiver, which must be motivated and able to process any persuasive message. A person's involvement with an issue or product is a key factor determining the motivation to process the message (Celsi & Olson, 1988). Much advertising research has centered on consumers' involvement when processing ad messages (Andrews, Durvasula, & Akhter, 1990). Involvement has been defined as "an individual, internal state of arousal with intensity, direction and persistence properties" (Andrews, Durvasula, & Akhter 1990). Celsi & Olson (1988) refer to that motivational state as "felt involvement," meaning that it emanates from an individual's feeling of enduring personal relevance (intrinsic involvement) or from transitory environmental cues (situational involvement).

Advertisers strive to produce messages that will involve the people, prompting the audience to devote more attention to and engage in more elaboration of the information contained in the ads (Gordon, McKeage, & Fox, 1998). But some research shows that when the audience involvement is low (and motivation to process the ad message is low) peripheral cues such as

source characteristics become more salient determining factors in how consumers perceive and react to advertisements (Petty, Cacioppo, & Schumann 1983). Schuhwerk and Letkoff-Hagius (1995) found that involvement played a key role in the effectiveness of "green" advertising appeals. Those who were highly involved with the environment were not swayed by green appeals by advertisers, while those who were less involved with the environment found the appeal of "green" advertising significantly more persuasive than non-green appeal.

Several consumer-based studies have investigated psychological aspects of environmental concern and environmental behaviors. One study found a positive correlation between an individual's environmental attitudes (and by extension, behavior) and intent to purchase ecologically packaged products (Schwepker & Cornwell, 1991). And Ellen, Wiener, and Cobb-Walgren (1991) found that consumer efficacy, or the degree to which individuals thinks they can make a difference in the quality of the environment, was positively related to intent to purchase environmentally safe products.

Adwatch communication

The final component for understanding the effects of environmental advertising is to examine how contradictory messages from other sources can impact advertising effects. Studies examining adwatches are directly related to the central question posed by this research — whether exposure to media messages about an environmental ad mitigate the ad's effectiveness. Adwatches, which have largely been used in political advertising, have been defined as "a media news critique of candidate … to inform the public about claims that are either exaggerated or false" (Pfau & Louden, 1994, p. 326).

Jamieson (1994) suggested that adwatches can create what is known as a "boomerang" effect, meaning that exposure to adwatches critical of a negative ad led to better recall of the ad.

McKinnon (1995) found that viewers who saw a television adwatch reported more positive evaluations of the targeted ad than did viewers who saw the ad only. Yet seeing an adwatch did not change viewers' evaluations of the candidates. Cappella and Jamieson (1994) found that adwatches did not lead to a more positive attitude toward the candidate criticized in the ad and that adwatches caused the critiqued ad to be seen as less fair and less important. Finally, they found that those who had the least exposure to the original ad best remembered an adwatch's content. Thorson, Coyle, Meeds, and Ogianova (1996) found that presentation order of an ad and its adwatch made no difference on audience attitudes. But they suggested that learning was influenced by order and whether just the ad, the adwatch, or both messages were seen. For low-involvement issues such as a race for a state office, learning was lower when the adwatch was seen before the ad. But for high-involvement issues such as a race for national office, learning was higher when the adwatch was seen before the ad.

Research Questions

Studies on political adwatch communication, as well as several "green consumer" and "social" marketing studies, suggest that involvement is one of the key variables in determining the extent to which attitudes and behavior are influenced by ad and other media messages. But, to date, most studies on the effects of environmental advertising has centered on "green" consumerism (Roberts & Bacon, 1997). These studies have addressed the characteristics of audience rather than the messages. Those studies that have examined messages typically have not examined source and receiver characteristics.

Clearly advertising messages do not work in a vacuum. The exchange of ideas is a complex process, one that involves source, message, and receiver. Adwatch literature in particular points to the unique relationship that exists between the source, its distillation of message, and the

final acceptance of the message by the receiver. Pfau and Burgoon's (1988) work on inoculation messages suggested that newspaper adwatches often blunt the effectiveness of political attack ads. Milburn and Brown's (1995) experimental study concluded that adwatch columns in the 1992 presidential race might have helped viewers critically process advertising information. O'Sullivan and Geiger (1995) found indications that newspaper critiques of attack ads can be a determinant of how the ads effect people's assessment of candidates. Source credibility takes an important role in this equation. Not only is it a key component in peripheral-route processing, research has demonstrated that when a source is seen as highly credible, attitude change can occur (Hovland, Janis, & Kelley, 1953).

Thus, to examine the effects different types of messages about environmental advertisements can have on attitudes, the following hypotheses are posed:

> **H1: Exposure to any sort of message that contains negative information about an environmental advertising campaign, regardless of credibility of the publication or balance of the message, will lead to lower attitudes toward the advertisement and its sponsoring company than a neutral message about environmental advertising.**
>
> **H2: Subjects who read a story about the advertisement campaign from a highly credible source, regardless of story balance, will hold lower attitudes toward the advertisement and its sponsoring company than subjects who read a story from a source with low credibility, regardless of story balance.**

Because the literature on message balance was mixed – some studies indicated that one-sided messages are more effective, while others found two-sided messages were more powerful – the following research questions were posed:

> **RQ1: What effect does message balance, regardless of publication credibility, have on attitudes toward the advertisement and its sponsoring company?**
>
> **RQ2: Do publication credibility and story balance interact to have an effect on attitudes toward the advertisement and the company?**

Finally, to investigate the effect of both manipulated and pre-existing demographic variables on attitudes, the following research question is posed:

> **RQ3: What factors - including source credibility, message balance, environmental participation and involvement, and demographic variables – most influence attitudes toward the advertisement and its sponsoring company?**

Method

An experimental design was used to evaluate the impact of news articles about corporate environmental advertising on attitudes toward such ads. Subjects were recruited from classes at a midsize Western university and tested in their classrooms. Subjects were worked through a seven-page questionnaire that included basic demographic measures, measures of the independent and dependent variables, a Phillips Petroleum environmental ad, one of five versions of the experimental stimuli (a news story — discussed below), and manipulation checks.

All subjects were shown the same magazine advertisement, a Phillips Petroleum Co. ad that first appeared in Harper's and Discover magazines in 1998. The ad was chosen because Phillips has a minimal presence in the region in which this experiment was conducted and because few, if any, subjects were expected to be familiar with the advertisement or refinery site program. The advertisement is typical of most environmental "greenwashing" in that it touts the corporation's active environmental involvement, not only in keeping the environment clean but also in offering solutions through public-private partnerships. The ad, which features several gulls evocatively darkened, their images reflecting off nearby water, touts a plan to increase habitat of waterfowl at former refinery site in Texas. The headline reads: "Thanks to Phillips, Weary Travelers Will Always Have a Place to Stop and Refuel." The ad's text reads:

> By donating a former plant site to the Cactus Playa Lake Project, Phillips Petroleum helped expand and protect the habitat of hundreds of thousands of migratory birds. The project resulted from the cooperative efforts of Phillips, wildlife and conservation agencies and the community of Cactus, Texas. Now bald eagles, waterfowl and dozens of other bird species

have a better place to rest along the Central Flyway. It's yet another example of what it means to be The Performance Company.

Independent variables

Manipulated independent variables. The manipulated independent variables were publication credibility and message balance (one- versus two-sided arguments). Subjects were randomly assigned to one of five conditions: high credibility, one-sided message; high credibility, two-sided message; low credibility, one-sided message; low credibility, two-sided message; and neutral control, used only for the test of the first hypothesis.

Source credibility was manipulated by using two media sources for the news story about the advertisement: The New York Times and a fictitious environmental watchdog group, Earth Watch. A third source, the fictional Odessa (Texas) Tribune, served as a control. The fictional paper was created because subjects were expected to have no preconceived opinions about its credibility. A paper in a larger, nearby town like Odessa, would have reason to write about the issue but likely wouldn't be as biased as the community paper for the town (Cactus, Texas) in which the refinery was located. New York Times was selected as the "high credibility" source because of its strong reputation as the world's leading newspaper. The unknown Earth Watch was designed to represent a "low credibility" source. At the top of stories, the participants were given a statement in large, bold type saying where the stories originally appeared – in The New York Times, in the Odessa Tribune, or from the environmental group Earth Watch in a press release distributed to business editors on the public relations Newswire. To further ensure that subjects would attune to the source of the message, the stories were formatted to look as if they were retrieved from the Lexis/Nexis news database and included a statement of copyright for The New York Times, the Odessa Tribune or Earth Watch. Further, a byline cue identified the writer as a staff member for whichever source printed the story.

A manipulation check of publication credibility consisted of three items that were averaged together to create a score for each subject (M = 4.67; sd = 1.25, range 1.33 to 7). The items, semantic differentials adopted from Meyer (1988) that measured publication credibility and trustworthiness, loaded into a one factor (Eigenvalue = 2.61), which explained 87.06% of the variance. The scale was highly reliable at a = .93. The 74 subjects in the two New York Times groups were compared with the 76 subjects in the Earth Watch groups and to the 38 subjects in the neutral Odessa Tribune group. A one-way analysis of variance (ANOVA) showed significant differences among groups ($F = 15.40$, $df = 2, 185$, $p < .001$). Post hoc analysis using Tukey's HSD showed that those who received a story from the New York Times, regardless of story balance, rated the publication as significantly more credible (M = 5.27) than those who received an Earth Watch article, regardless of story balance (M = 4.30, $p < .001$). Also, the New York Times group rated the publication significantly higher than the Odessa Tribune, or control group (M = 4.27, $p < .001$).

Message balance was operationalized through one-sided and two-sided news stories. Both the one-sided and two-sided news stories were about 250 words and carried the same headline: "Phillips Petroleum in middle of environmental advertising debate." The neutral news story (from the Odessa Tribune) discussed general corporate spending on environmental advertising and did not mention Phillips. It carried the headline: "Environmental advertising on the upswing." In the two-sided news story, a two-paragraph news lead discussed – in neutral terms – the launch of Phillips' new ad campaign touting the Texas refinery project. The next three paragraphs were "anti-Phillips," stating that the corporation donated the site because of pressure from regulators and environmentalists. The following paragraphs are examples:

> "Toxic spills from the refinery have caused the surrounding area tremendous damage," said Kim Owens, director of Dallas-based Earth Watch, an environmental watchdog group. "Establishing a bird sanctuary won't make the damage go away."
>
> Owens said an environmental study shows Phillips was responsible for 39,000 gallons of oil that oozed into the nearby Cactus Playa Lake. Phillips was also fined $12,000 for improper handling of hazardous waste by the state of Texas, she says.

These were followed by three "pro-Phillips" paragraphs, lauding the corporation for taking a leading role in the project. The following paragraphs are examples:

> "The Cactus Playa Lake Project will be an excellent tool for not-for-profit environmental groups to allocate and acquire resources they would be hard-pressed to raise on their own," said Gerald Standard, Phillips' corporate public relations director.
>
> Standard added that conservation biologists from universities and state regulatory agencies in Texas have endorsed the partnership as a "much-needed enhancement of waterfowl habitat."

The one-sided story contained the same neutral paragraphs explaining the ad campaign, but only included "anti-Phillips" information. The anti-Phillips information was essentially the same as in the two-sided story, just expanded so the story lengths would be similar. The lead of the one-sided, anti-Phillips story, however, carried a negative frame: "A new environmental advertising campaign by Phillips Petroleum Company claiming to have protected the habitat of migratory birds in Texas is not true, according to a recent study completed by Earth Watch, a not-for-profit environmental organization." Therefore, in addition to the being one-sided, the story also differed from the two-sided story in that it carried a negative frame whereas the two-sided story had a neutral lead and, therefore, a neutral frame.

Manipulation of story balance was measured on a three-item, seven-point semantic differential scale. The three items (balanced, two-sided, fair) loaded into one factor (Eigenvalue = 2.03), which explained 67.58% of the variance. The scale was reliable at a = .76. However, dropping one item (fair/unfair – the only item that was reverse worded) improved overall reliability of the measure to a = .85. Therefore, that item was dropped from further analysis.

Average scores on the two items measuring story balance ranged from 1 to 7 (M = 3.79; SD = 1.59). The 75 subjects who read a two-sided story were compared with 75 subjects who read a one-sided story and 38 subjects who read a neutral story. Significant differences emerged by group ($F = 7.50$, $df = 2, 185$, $p < .002$). Those who received a two-sided message rated their news story as significantly more balanced (M = 4.29) than those who received a one-sided story (M = .3.31; $p < .001$). Those who received the neutral message (M = 3.75) scored in between the two other groups but did not differ significantly from either group.

Other factors. Several other factors that might have an effect on attitudes also were measured. Demographics investigated were age, gender, political affiliation, and major, because past literature suggests that these are key in determining attitudes toward the so-called "green" consumerism in advertising (Roberts, 1996). Past experience with oil companies in general also was measured to tap pre-existing views toward the industry.

Two scales were used to measure environmental involvement and behavior. The first scale originally used in an environmental marketing study by Straughan and Roberts (1999), based on psychographic measures from an environmental concern study by Roberts (1996) and on the new environmental paradigm (NEP) index developed by Van Liere and Dunlap (1981). For the current study, the items were an indicator of emotional involvement with the environment and were measured on a seven-point Likert format. During his 1996 use of the scale, as well as the 1999 replication, Roberts reported that the 12-item inventory loaded into four factors. The two dominant factors in both studies, (1) a desire for balance, or harmony, with nature and (2) a reflection of the concern for limiting growth, each contained four items and were reliable (a = .83 and .71, respectively). Therefore, those eight items were used in this study. They included

statements such as "We are approaching the limit of the number of people the earth can support," and "The balance of nature is very delicate and easily upset."

The other scale used, an environmental behavior scale, was altered from an 11-item political behavior scale developed by Greer (1996) based on a review of more than 20 political behavior scales. In that study, the measure was reliable at .84 with an average inter-item correlation of .32. For this study, nine items were chosen and adapted to include wording about subjects' behaviors concerning the environment. Subjects were asked how often they participated in the environmental action described, based on a seven-point scale ranging from "Never" to "Almost always." The items described actions such as "talking with friends or family about the environment," "contributing money to an environmental group," and "watching television programs about the environment."

Dependent variables

Most corporate environmental advertising is aimed at both deflecting criticism and improving the company's image. Therefore, this study measured subjects' attitude toward the advertisement as well as attitude toward sponsoring company. Because the study investigated attitudes toward advertisements, rather than the news articles that served as the experimental stimuli, scales such as Meyer's (1988) measure of source credibility of news content were bypassed. Instead, an attitude toward the ad scale was developed from Beltramini's (1982) 10-item television advertising believability scale, which has reported reliability as high as .95. Additional items from Roddy and Garramone's (1988) measure of the believability and persuasiveness of political commercials and items from Thorson, Christ, and Caywood's (1991) "ad attitude" scale were added, then similar items were deleted. The resulting scale consisted of the following semantic differential scale, measured on a seven-point response set:

Unbelievable/Believable; Untrustworthy/Trustworthy; Not convincing/Convincing; Not credible/Credible; Unreasonable/Reasonable; Deceptive/Truthful; Questionable/Unquestionable; Inconclusive/Conclusive; Unethical/Ethical; Inaccurate/Accurate.

Findings

Demographic data

During six sessions, 188 subjects participated, 37 of which received the two-sided article labeled from the New York Times, 37 the one-sided article from the New York Times, 38 the two-sided article labeled as a press release from Earth Watch, 38 the one-sided article from Earth Watch, and 38 the neutral article labeled from the Odessa Tribune. Of the total 188, 63.8% (N = 120) were female, and 36.2 % (N = 68) were male. Subjects ranged in age from 18 to 47 (M = 21.4, SD = 4.32). Almost two-thirds of the subjects (115) were 19 to 21 years old. A wide variety of majors were represented, but comparisons by major showed no differences among groups, so that variable was dropped from further analysis. Two subjects described their political views as strongly conservative, 20 said they were conservative, 41 said they were moderate conservative, 59 said they were independent, 39 said they were moderate liberal, 26 said they were liberal, and one reported being strongly liberal. About three fourths (74.5%) of the subjects reported having either neutral or favorable experiences with oil companies. Seventy-nine subjects rated their experience with oil companies as somewhat to highly favorable, 61 reported neither favorable or unfavorable experiences, and 48 reported somewhat to highly unfavorable experiences.

Scale analyses

The nine items in the environmental participation scale loaded into one dominant factor (Eigenvalue = 4.64), explaining 51.64% of the variance. Reliability analysis of the scale showed a Cronbach's alpha of .88, which would have been lowered by removing any item. The nine items

were retained and averaged to create an environmental participation score for each subject (M = 3.22; SD = 1.08; range 1.00 to 6.22). One dominant factor also emerged for the environmental involvement scale that contained all eight items and had an Eigenvalue of 4.34, explaining 51.29% of the variance. The scale was reliable (a = .88) and removal of any of the items would not have increased reliability. Therefore, the eight items were averaged to create an environmental involvement score for each subject (M = 5.14; SD = 1.13; range 2.13 to 7.00).

The 10-item attitude toward advertisement scale followed the same pattern. The dominant factor had an Eigenvalue of 6.52, explaining 65.21% of the variance. The scale also was reliable (a = .94). The 10 items were therefore averaged to create an attitude toward advertisement score for each subject (M = 3.65; SD = 1.20; range 1 to 7). Finally, the attitude toward the company scale produced a dominant factor with all 10 items (Eigenvalue = 7.72, explaining 77.20 % of the variance). The scale was reliable (a = .97). The 10 items were averaged to create an attitude toward the company score for each subject (M = 3.30; SD = 1.28; range 1 to 7).

Tests of Hypotheses and Research Questions

H1: Exposure to any sort of message that contains negative information about an environmental advertising campaign, regardless of credibility of the publication or balance of the message, will lead to lower attitudes toward the advertisement and its sponsoring company than a neutral message about environmental advertising.

To test the hypothesis, the 150 subjects who received any negative information about the ad (the four treatment groups) were compared to the 38 subjects who received a neutral news story that didn't contain any information about the ad campaign (the control group). An independent samples t-test showed that those who saw a story on the Phillips Petroleum advertisement, regardless or source credibility or story balance, had significantly lower attitudes toward the advertisement (M = 3.54) than subjects who saw a neutral story (M = 4.05, t = 2.36, df = 186, p < .02). Additionally, those who saw a story on the ad had significantly lower attitudes toward

Phillips (M = 3.15) than subjects who saw a neutral story (M = 3.88, t = 3.24, df = 186, p < .002). Therefore, Hypothesis No. 1 was supported.

H2: Subjects who read a story about the advertisement campaign from a highly credible source, regardless of story balance, will hold lower attitudes toward the advertisement and its sponsoring company than subjects who read a story from a source with low credibility, regardless of story balance.

To test Hypothesis No. 2, the 74 subjects who read stories labeled from the New York Times were compared to all 76 subjects who received articles labeled from Earth Watch. An independent samples t-test showed that the means were virtually identical between the two groups for both dependent variables. Therefore Hypothesis No. 2 was not supported.

RQ1: What effect does message balance, regardless of publication credibility, have on attitudes toward the advertisement and its sponsoring company?

The 75 subjects who received a two-sided story were compared to the 75 subjects who read a one-sided story. An independent samples t-test showed no significant differences in attitudes toward the advertisement measure. However, the one-sided ("anti-Phillips") group (M = 2.94) had significantly lower attitudes toward the company than the balanced, two-sided group (M = 3.36, t = 2.05, df = 148, p < .04).

RQ2: Do publication credibility and story balance interact to have an effect on attitudes toward the advertisement and the company?

A factorial ANOVA testing the independent variables of publication credibility and story balance on attitude toward the advertisement showed no significant differences among groups. No main effects or interactions were found. For attitude toward the company, a significant main effect was found for story balance (F = 4.15, df = 1, 149, p < .044). Subjects who received an unbalanced, one-sided story, regardless of publication, held significantly lower attitudes toward the company (M = 2.94) than those who received a balanced, two-sided story (M = 3.36). This

finding was expected given the results of Research Question 1. However, no main effect for publication credibility or no interactions were found on attitudes toward the company.

RQ3: What factors – including source credibility, message balance, environmental participation and involvement, and demographic variables – most influence attitudes toward the advertisement and its sponsoring company?

To analyze which variables most influenced attitudes toward the advertisement in the sponsoring company, a linear regression model (using Stepwise analyses) was run for each dependent variable. The following independent variables were loaded into the model: age, gender, political affiliation, experience with oil companies, participation in environmental issues, involvement with environmental issues, credibility of the publication that carried the story, and balance of the news story. As Table 2 shows, experience with oil companies was the strongest predictor of attitudes toward the advertisement. The more negative the experience with oil companies, the lower the subjects rated the ad. Environmental involvement, environmental participation, and political affiliation also were negatively related to attitude toward the advertisement. The greater the subjects' environmental involvement and participation, the lower the assessment of the advertisement. Also, as subjects were more liberal, they rated the advertisement as less credible. Neither of the manipulated independent variables (publication credibility or story balance) were predictors of attitude toward the advertisement.

Table 1: Primary Predictors for Attitude Toward Advertisement

Predictor variable	Beta
Oil experience (more negative)	-.235 **
Environmental involvement	-.197 *
Environmental participation	-.183 *
Political affiliation (being liberal)	-.158 *
R	.501
Adjusted R^2	.209

** $p < .01$; * $p < .05$

Attitude toward the company was investigated in the same manner. All of the above predictors emerged as significant in this equation, all again negatively related to the attitude. However, story balance also emerged as a significant predictor in attitude toward the company. As bias in the story increased (or balance decreased), attitudes toward the company decreased. Again, publication credibility didn't impact attitudes toward the company.

Table 2: Primary Predictors for Attitude Toward Company

Predictor variable	Beta
Environmental involvement	-.298***
Story balance (being more l sided)	-.193**
Political affiliation (being liberal)	-.175 *
Oil experience (more negative)	-.161*
Environmental participation	-.155*
R	.556
Adjusted R^2	.270

*** $p < .001$; ** $p < .01$; * $p < .05$

Summary of results

First, this study indicates that the effectiveness of environmental advertising can be tempered by a news story with any negative information about an advertisement or campaign. Those who saw a news story about the ad held significantly lower attitudes toward the advertisement and the company than subjects who saw a neutral story. While information from a highly credible publication was hypothesized to lead to lower attitudes toward the ad and the company than information from a less credible source, no differences in attitudes emerged based on credibility. Message balance only affected attitudes toward the company, not toward the ad. Subjects who read an "anti-Phillips," one-sided story, rated the company lower than those who read a balanced, two-sided story about the advertisement, regardless of publication credibility. The interaction between story balance and publication credibility did not make a difference in

attitudes. An unbalanced story from the New York Times had the same effect as an unbalanced story from a lower-credibility source.

When all variables – both manipulated and demographic – were considered as a group, pre-existing receiver characteristics, not story balance or publication credibility, played the key role in shaping attitudes toward the ad. Subjects who had more negative experiences with oil companies, who were more highly involved with the environment, who participated more in environmental-related activities and who were more liberal held more negative attitudes toward the ad than their peers. The news story was not a predictor of attitudes toward the ad in this equation. However, message balance was a key predictor in attitudes toward the company. The above receiver characteristics were key predictors for this attitude, but subjects who read a less balanced message also held lower attitudes toward the company. But again, publication credibility was not a predictor, however.

Discussion

Before discussing the meaning of the findings of this study, it is helpful to first explore the limitations, which in part might explain the results. The most obvious limitations of the study are those inherent in any experimental design — namely threats to external validity. The study used a homogenous group of college students exposed only one time to an ad and a news story in a non-natural setting. Most had favorable experiences with oil companies, even though the experiment was run at a time of all-time high gas prices. In addition, most were between the ages of 19 and 21. Age, which in past studies has emerged as a key factor in the evaluation of such messages, was not a factor here, largely because it varied so little in the subject pool. Thus, as always when using students as subjects, restraint must be used when generalizing the findings of this study to other populations. A more diverse subject pool should be used for replication of this study.

The more serious limitation of the study lies in the manipulation of publication credibility. Although the manipulation check demonstrated that subjects rated The New York Times as significantly more credible than the environmental group Earth Watch, subjects did not rank Earth Watch as low in credibility. The press release from the fictions Earth Watch press release was designed to be seen as an advocacy piece from a group with a definite point of view on the issue. However, subjects on average rated the credibility of Earth Watch as 4.30 on seven-point scale where 7 represented the highest credibility. In other words, the average score was on the credible end of the credible/not credible continuum. Subjects ranked Earth Watch virtually as credible as the Odessa Tribune, which subjects had no information about other than it was a newspaper in Texas. Further, scores on the measures of the two manipulation checks were highly correlated (Pearson Correlation = .388, $p < .01$), indicating that message balance may have affected views of the publications' credibility or vice versa.

The null result for Hypothesis 2 could be a result of a flaw in the study design, because although The New York Times was seen as highly credible, none of the publications in the study were low in credibility. Still, it must be remembered that The New York Times was rated as significantly higher in credibility than Earth Watch, but that higher rating of credibility didn't lead to lower attitudes toward the ad and its sponsoring company. Still heeding the cautions about credibility discussed above, this study suggests that it may not matter whether a message comes from an august publication such as The New York Times or from a press release generated by an environmental watchdog group such as the fictitious Earth Watch. This result is provocative, given the recent finding by Rouner, Slater, and Buddenbaum (1999) that the general public fails to discriminate news source bias in the same way as journalists do, and that many news consumers don't make the same assumptions about self-interested sources that journalists do. A related result

of this study, although not part of the formal hypotheses or research questions, is that subjects did seem to differentiate between the publication carrying a news story and the news sources quoted in the story when assessing credibility. It should be noted that all stories used as experimental stimuli in this study, regardless or story balance or publication credibility, quoted an official from Earth Watch. Clearly, news source credibility is an area still ripe for further research.

Looking beyond source credibility, the results of Hypothesis 1 and Research Question 1 together can be seen as both a validation and a warning about the power of news stories that attempt to get at the "truth" behind environmental advertisements. First, journalists should take heed that any exploration of the corporate environmental ad campaigns can mitigate the impact that the ads have on audiences. Regardless of the publication, and regardless of the balance of the story it carried, readers of such news stories were less likely to rate the ad as positive than those who didn't read a news story about the campaign. But the results from Research Question 1 seem to indicate that while any negative information can mitigate the effectiveness of environmental advertising, one-sided, negative messages were more effective in countering the claims of the ads. Those who saw balanced messages rated the company as significantly more positive than the one-sided group. Acceptance of a message and change in attitude thus seems to be driven only by story balance – the more unbalanced and one-sided the message is, the more amplified the change in attitude becomes.

What does this suggest for journalists, who pride themselves on objectivity and balance? Should they counter environmental ad claims with negative, one-sided stories? Journalists should be wary of such an aggressive, one-sided approach. Because any negative information about a misleading ad claim can temper advertising effects, balanced stories still play an important role. However, in arenas where journalists can step back from their objective stance — commentary,

opinion, advocacy journalism, and, some would argue, adwatches — the value of one-sided messages shouldn't be underestimated. And, to reintegrate, the subjects' assessment of message balance and publication credibility were highly correlated. This could indicate that journalists who abandon balance could see their credibility among audiences decline.

Returning to the issue of credibility, the subjects' lack of discrimination among information from publications that clearly varied in credibility carries implications for journalists and public relations practitioners. A story in a highly credible news outlet does not guarantee that it will be viewed any more favorably than a press release from an unknown environmental organization. And groups pushing to get their messages into elite media outlets might be just as effective in getting their position publicized by lower-credibility sources that are widely read.

In examining individual subject characteristics, those who are highly emotionally involved with environment and who are active environmentalists were expected to read the messages much more critically – in effect, they would be more savvy news consumers. Overall, these individuals held more negative attitudes toward the advertisement and the company after reading the news story – but again this phenomenon occurred regardless of the source. The expectation was that such highly involved subjects would process these messages through the central route. But subjects did not pay attention to the credibility of publication in a manner that the ELM would have predicted.

More research on the effects of one-sided, unbalanced negative messages, regardless of publication credibility, should be conducted. Examining the impact of one-sided, negative environmental messages versus one-sided, positive environmental messages would help shed light on the results of this study. Also, research should examine whether attitudes on environmental ads

shown many times over many weeks or months (as is typical in a real-world setting) are more resistant negative information from the news media.

Conclusion

Perhaps the strongest finding of this study is that any information about an environmental advertisement, from any type of source, can combat the one-sided messages presented in environmental advertising. But the findings of this study may suggest that journalists need to refine some of their basic tenets concerning source credibility and story balance. Stories in highly credible publications aren't necessarily more powerful, and one-sided messages can shape attitudes when appropriate. Journalists need to not only reverse the trends of declining environmental coverage but also examine their role in environmental discourse. Environmental journalists wishing to make their voices heard above the growing din of one-sided environmental advertising should continue the tradition of balanced, two-sided news coverage while employing one-sided messages when appropriate. Advocacy or immersion journalism and public service reporting campaigns should be explored in any renewed journalistic effort to adequately cover the environment.

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